DOCUMENT RESUME

ED 022 047 VT 005 775

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VOCATIONAL-TECHNICAL EDUCATION IN NEW MEXICO. WORK PROJECT NO. 7.
New Mexico Occupational Research and Development Coordinating Unit, Santa Fe.
Pub Date Feb 68
Note- 36p.
EDRS Price MF-$0.25 HC-$1.52
Descriptors- EVALUATION CRITERIA, PROGRAM DEVELOPMENT, *PROGRAM IMPROVEMENT, *PROGRAM PLANNING, *TECHNICAL EDUCATION, *VOCATIONAL EDUCATION, *VOCATIONAL SCHOOLS
Identifiers- New Mexico

A design for the future of vocational and technical education was developed utilizing existing situations, manpower development data, and vocational-technical enrollments as supporting evidence. Major recommendations were for--(1) extending some form of vocational education into the grade and junior high schools, (2) implementing the cluster concept for low ability student occupational education, vocational education and technical education, (3) extension of cooperative part-time programs into the trade, agricultural, service, and health areas, (4) development of counselor inservice training programs, and (5) expansion of area vocational-technical centers. Program effectiveness must be evaluated according to the percentage of trainees who work at the occupation for which they are trained, how well the trainees do in their respective occupations, and how well the trainees as individuals are satisfied with the training they receive. (DM)

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DESIGNING EDUCATION for the FUTURE

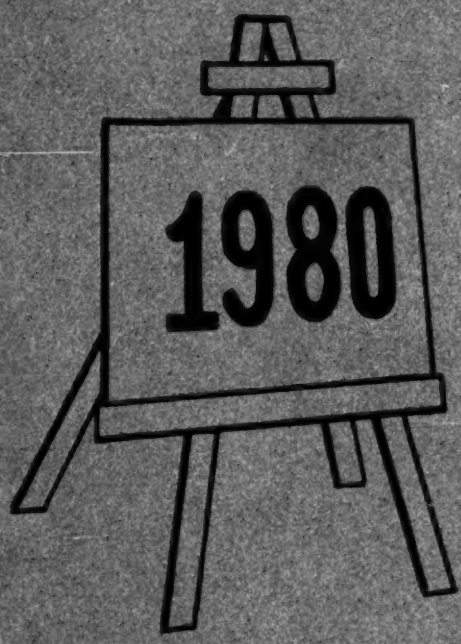
and

New Mexico

VOCATIONAL - TECHNICAL EDUCATION IN NEW MEXICO

NOW AND THE FUTURE

Dr. Al Bettina



WORK PROJECT NO. 7

Educational Program

RESEARCH COORDINATING UNIT
VT030775
ED022047

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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VOCATIONAL - TECHNICAL EDUCATION

IN NEW MEXICO

by

Dr. Al Bettina

February 1968

Prepared for the New Mexico Research Coordinating Unit, Santa Fe.
and the New Mexico State Advisory Committee
on
Designing Education for the Future
Study Committees on Instructional Program & Educational Facilities

VOCATIONAL - TECHNICAL EDUCATION

IN NEW MEXICO

Now and the Future

INTRODUCTION

Today's schools face dynamic challenges in preparing youth for success in a technological age. Societal pressures and demands make the task of providing the optimum educational experiences for each student increasingly difficult. Confining the offerings to college preparatory programs is a luxury that we can no longer afford.

At a recent White House Conference on Education, Ginzberg supported this idea when he stated:

> Today about four out of every six young people earn a high school diploma, and approximately half of these enter college. Once again, about half who enter college eventually earn their baccalaureate degree--that is, about one in every six in the age group. Put negatively, five out of six young people do not graduate from college; two leave high school; two stop with a high school diploma; one more leaves at sometime in college. (30, p. 7)

A constant review and revision of educational purposes and practices is required to keep pace with a changing world. General objectives of education now charge the school with a vast range of responsibility with respect to the total development of students. Within this framework of education, that part that we label vocational-technical has a significant responsibility to the people.

The place of vocational-technical education in the public school program has been accepted in principle, but its availability to the youth of the nation varies from state to state and with the size and financial condition of the community. Until the passage of the Vocational Education Act of 1963, only a few school districts had attempted to make comprehensive vocational education available. Furthermore, where vocational education was available, many students were denied access to these programs by subject matter prejudices of school counselors and, perhaps to an even greater extent, by unrealistic parental attitudes. The availability of substantial financial assistance which has made it possible for vocational education to finally "go first class" has certainly been an important factor in its phenomenal development.

The passage of the Vocational Education Act of 1963 was evidence that the Congress was made aware of the need to expand offerings for the types of students that can not profit from college preparatory curricula. The purpose of the Act appears as Section I:

> It is the purpose of this part to authorize Federal grants to States to assist them to maintain, extend, and improve existing programs of vocational education, to develop new programs of vocational education, and to provide part-time employment for youths who need the earnings from such employment to continue their vocational training on a full-time basis, so that persons of all ages in all communities of the State--those in high school, those who have completed or discontinued their formal education and are preparing to enter the labor market but need to upgrade their skills or learn new ones, and those with special handicaps--will have ready access to vocational training or retraining which

> is of high quality, which is realistic in the light of actual or anticipated opportunities for gainful employment, and which is suited to their needs, interests, and ability to benefit from such training. (22, p. 1)

This Act should be considered a mandate to each state to provide a greater quantity and a high quality of vocational education than has heretofore been possible.

Definition of Terms

Since some of the important terms in this paper have acquired a variety of meanings in the literature it is necessary to define them in order to avoid a misunderstanding of the content.

Advisory Committee. Two types of committees are utilized in vocational-technical education--general and specific or craft committees. An advisory committee is selected for the purpose of offering advice and counsel to the school regarding the vocational program. Members are representatives of the people who are interested in the activities related to a given vocational program. (1, p. 3)

Area Vocational School. Several types of organization can be classified under this term. According to the Vocational Education Act of 1963 the term means:

> 1. A specialized high school used exclusively or principally for the provision of vocational education to persons who are available for full-time study in preparation for entering the labor market, or

2. the department of a high school exclusively or principally used for providing vocational education in no less than five different occupational fields to persons who are available for full-time study in preparation for entering the labor market, or

3. a technical or vocational school used exclusively or principally for the provision of vocational education to persons who have completed or left high school and who are available for full-time study in preparation for entering the labor market, or

4. the department or division of a junior college or community college or university which provides vocational education in no less than five different occupational fields, under the supervision of the State Board, leading to immediate employment but not leading to a baccalaureate degree. (22, p. 7)

An area vocational school must be made available to all residents of a state or a specific area of a state designated by the State Board for Vocational Education. Also, if an area vocational school is organized as (3) or (4), it must admit as regular students high school dropouts as well as graduates. (22, p. 7)

Cluster Concept. This term refers to a form of vocational education directed toward the preparation of individuals for entrance into a spectrum of occupations. The occupations selected for the cluster are those found to require the same proficiencies in a number of areas such as measurement, communications, mathematics, skill and general information. A program of this type prepares a person to enter into a family of occupations rather than a specific occupation. (10, p. 22)

Cooperative Part-time Program. This type of program is planned for persons who are enrolled in a school and who, through a cooperative

arrangement between the school and employers, receive part-time vocational instruction in the school and on-the-job training through part-time employment. (1, p. 6)

Day-trade Classes. These are classes for full-time students who have selected a trade or industrial pursuit and wish to prepare for employment in that occupation. Training includes instruction in manipulative processes and those technical and other related subjects which are needed by a skilled worker. (1, p. 7)

Distributive Education. This is a cooperative part-time program in the distributive occupations.

Industrial Cooperative Training. This is a cooperative part-time program which provides training in a trade or industrial pursuit.

Job-oriented Home Economics. This is a program designed to prepare persons for employment in occupations involving knowledge and skills in home economics subjects. (1, p. 11)

Occupational Education. As used in this paper the term occupational education refers to a lower level of training provided for students in the secondary schools who cannot profit from the regular vocational education program.

Occupational Work-Experience Program. This program is designed for academic underachievers who cannot profit from the regular vocational program. Work experience in low-level jobs is coupled with specially designed academic courses.

Technical Education. This term refers to a program designed to prepare technicians for the relatively new semi-professional occupational area in the labor force between the engineer or scientist and the skilled craftsman. This training is normally available in a post-high school, collegiate-type program and is usually structured into a two-year curriculum. The need for the ability to apply scientific and engineering principles distinguishes the product of this program from the skilled craftsman.

Vocational Education. The term, in its most general sense, refers to any type of education or training that prepares one for, or upgrades one in, a gainful occupation. Time is no factor. Training for any of the occupations could be classified as vocational education. Obviously this leads to confusion. A more widely accepted definition restricts it to training for non-professional occupations such as office, industrial, service, agricultural, and health occupations. When the term regular vocational education program is used the above meaning is restricted to programs supported under the Smith-Hughes and George-Barden Acts.

Vocational-Technical Education. As used in this paper the term vocational-technical education is a general term encompassing all programs of vocational and technical education as defined earlier. It should be noted that defining the term in this fashion makes it synonymous with the term "vocational education" as defined in the Vocational Education Act of 1963. Although this stand may appear to be confusing, the literature tries to distinguishes between trade (a phase of vocational education as defined in this paper) and technical education (as defined in this paper).

Legislation

Federal acts providing funds for vocational-technical education have ranged from tightly structured, specific occupational-area oriented to the more educationally acceptable meet-the-needs-of-people legislation.

The Smith Hughes Act of 1917. The first act concerned with vocational education of less than college grade, the Smith-Hughes Act has provided for the appropriation of a fixed amount of money for every year since its passage. Programs in agriculture, home economics, trade and industrial education and teacher training are eligible for support. An amendment passed as part of the Vocational Education Act of 1963 permits the transfer of funds from one vocational area to another under certain conditions. (24) Table I shows the amount of funds allotted under the Smith-Hughes Act to states in the mountain region for the last fiscal year.

The George-Barden Act of 1946. Although the George-Barden Act was technically an amendment to the George-Deen Act of 1936, the latter has lost its identity. Originally, the George-Barden Act, an authorization rather than an appropriation bill, covered the vocational areas of agriculture, home economics, trade and industrial education, and distributive education. Subsequent legislation added practical nursing (Title II) and technical education (Title III) (23) (19) (20) George-Barden funds allotted to the mountain states for the fiscal year ending 1967 are shown in Table II.

TABLE I

Smith-Hughes Allotments
To Selected States for Fiscal Year 1967

State	Total	Agriculture	Trades & Industry & Home Economics	Teacher Training
(1)	(2)	(3)	(4)	(5)
Arizona	51,789	18,401	23,388	10,000
Colorado	66,744	25,594	31,150	10,000
Idaho	39,430	19,430	10,000	10,000
Montana	38,655	18,665	10,000	10,000
Nevada	30,000	10,000	10,000	10,000
New Mexico	43,107	18,012	15,095	10,000
Utah	38,478	12,402	16,076	10,000
Wyoming	30,000	10,000	10,000	10,000

TABLE II

George-Barden Allotments
To Selected States for Fiscal Year 1967

State	Title I							Title II	Title III
	Grand Total	Total	Agriculture	Distributive Occupations	Home Economics	Trades and Industry	Fishery Trades and Industry	Practical Nurse Training	Technical Education
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Arizona	279,450	167,549	40,000	17,919	47,907	59,848	1,875	27,975	83,926
Colorado	434,455	260,066	89,720	24,136	66,636	77,699	1,875	43,597	130,792
Idaho	335,250	200,854	93,392	15,000	50,587	40,000	1,875	33,599	100,797
Montana	299,881	179,744	74,273	15,000	48,596	40,000	1,875	30,034	90,103
Nevada	228,058	136,875	40,000	15,000	40,000	40,000	1,875	22,796	68,387
New Mexico	245,693	147,401	40,980	15,000	46,895	42,651	1,875	24,573	73,719
Utah	228,854	137,350	40,000	15,000	40,000	40,475	1,875	22,876	68,628
Wyoming	228,058	136,875	40,000	15,000	40,000	40,000	1,875	22,796	68,387

The Vocational Education Act of 1963. Approximately six times as much support for vocational education has now been made available to New Mexico by the latest piece of legislation passed by the Congress. Rather than allotting monies to specific occupational areas (agriculture, trade and industrial education, home economics, distributive education, and technical training) the Vocational Education Act of 1963 addresses itself to the needs of groups of people. Funds can be used to implement programs of vocational education for (1) persons attending high school; (2) persons who have completed or left high school and are available for full-time study; (3) persons who have entered the labor market and who need training or retraining; (4) and persons who have academic, socio-economic, or other handicaps (disinterested, reluctant learner, disadvantaged, alienated, culturally deprived) that prevents them from succeeding in the regular vocational education program. (22) Funds allotted to the mountain states under this act are shown in Table III.

The Manpower Development and Training Act of 1962. The central purpose of the Manpower Development and Training Act is to establish training programs for the hard-core unemployed and others unemployed because of automation or other technological changes taking place in the labor market. Trainees are recruited by the State Employment Service and are paid subsistence benefits while receiving training. Some programs are completely institutional in organization while others are either coupled with a period of on-the-job training (OJT) or entirely on-the-job (21). Tables IV, V, and VI illustrate the variety of training programs considered for the fiscal year ending 1967 under MDTA.

TABLE III

Allotment of Federal Funds to Selected States Under the Vocational Education Act of 1963 For Fiscal Year 1967

State	Section 4 Activities	Section 13 Work-Study
Arizona	1, 805, 218	83, 404
Colorado	1, 946, 059	100, 385
Idaho	890, 996	39, 455
Montana	796, 156	37, 956
Nevada	337, 727	19, 977
New Mexico	1, 302, 460	58, 932
Utah	1, 200, 597	54, 937
Wyoming	340, 700	17, 979

TABLE IV

Manpower Development Plan[1]
For Training Under MDTA for Fiscal Year 1967
State Summary

Occupation and/or Occupational Group	Number of Trainees	Labor Area(s)	Average Wks of Training	Estimated Total Federal Cost	Estimated State Contribution
TOTAL(All Types):	784			$1,100,000	$65,153
Institutional					
Stenographer	35	Las Cruces	32	48,572	5,326
Stenographer	25	Roswell	32	32,548	2,860
Licensed Practical Nurse	25	Las Cruces	52	75,992	5,009
Electronics Mechanic	35	Roswell	50	120,414	14,400
Draftsman, Entry	25	Albuquerque & Las Cruces	50	91,867	4.978
Special Youth Multi-Occupational	101	Albuquerque	Various	181,701	15,000
Individual Selection (Less-than-class-group)	20	Albuquerque, et al	Various	34,800	---

Air Conditioning Mechanic, Commercial (Refresher training for journeyman plumbers and pipefitters)	15	Albuquerque, et al	8	14, 680	---
Licensed Practical Nurse	20	Santa Fe	52	43, 623	6, 375
Stenographer	30	Farmington	43	45, 503	8, 205
Stenographer (Refresher)	50	Albuquerque	10	15, 300	2, 000
Chassis Assembler (Electronics)	34	Albuquerque	10	15, 000	1, 000
TOTAL INSTITUTIONAL TRAINING SLOTS PROGRAMMED	415			$720, 000	$65, 153

1. Manpower Development Plan, State Plan Table A, Amended 10/25/66/

TABLE V

Manpower Development Plan[1]
For Training Under MDTA for Fiscal Year 1967
State Summary

Occupation and/or Occupational Group	Number of Trainees	Labor Area(s)	Average Wks. of Training	(Inst.	OJT)	Est. Total Federal Cost
Coupled						
Cook	20 1/	Albuquerque (Statewide)	26	13	13	$ 23,000
(Special Youth Multi-Occupational Project including Basic Education)						
Metal Machine Trades	20	Albuquerque (Statewide)	50	25	25	56,875
(Special Youth Multi-Occupational Project including Basic Education)						
Automobile Mechanic(Entry)	20 2/	Roswell	43	17	26	28,000
Automobile Mechanic(Entry)	20 2/	Farmington	39	13	26	35.449
Baker(Pre-Apprenticeship)	30	Albuquerque (Statewide)	26	13	13	52,500
Bricklayer(Pre-Apprenticeship)	15	Albuquerque	18	6	12	17,000
Farm Equipment Mechanic	25	Statewide	39	13	26	29.250
Cook	25 1/	Roswell, et al	26	13	13	23,000
Auto Service Station Mechanic	25	Albuquerque (Statewide)	25	10	10	26,100
(Special Youth Multi-Occupational Project including basic education)						
Auto Body Repairman	30	Statewide	39	13	26	38,500
TOTAL	230					$329,674

1. Manpower Development Plan, State Plan A, Amended 10/25/66.

TABLE VI

Manpower Development Plan
For Training Under MDTA for Fiscal Year 1967
State Summary

Occupation and /or Occupational Group	Number of Trainees	Labor Area(s)	Average Wks. of Training	Estimated Total Federal Cost
On-the-Job-Training				
Solderer-Assembler	20	Roswell	26	$ 5,000
Maintenance Man	2	Albuquerque	26	936
TV Serviceman	1	Silver City	26	455
TV Repair	1	Hobbs	26	4,080
Auto Mechanic	2	Hobbs	26	1,196
Yardman	1	Artesia	26	468
Tool & Die Maker	1	Albuquerque	26	525
Auto Mechanic	1	Hobbs	26	598
Maintenance Mechanic	2	Albuquerque	26	1,048
Meat Cutter	5	Hobbs	26	2,250
Engineering Equipment Mechanic	20	Albuquerque	52	19,240

On-the-Job Training

Hair Stylist(Barber Upgrading National Contract)	48	Albuquerque	--	8,097
Auto Body Repair	3	Roswell	26	1,500
Auto Body Repair	2	Clovis	26	1,000
Meat Cutter	1	Santa Fe	26	450
Hod Carriers	16	Albuquerque	12	2,983
	139			$50,326

1. Manpower Development Plan, State Plan Table A, Amended 9/19/66.

VOCATIONAL-TECHNICAL EDUCATION IN NEW MEXICO THROUGH THE SEVENTIES

In keeping with the spirit of federal legislation, programs that prepare various types of people--age, ability, interest, etc.--for successful entry into the regional labor market must be made available. Appropriate advisory committees should be appointed early to assist in determining training needs and later in planning and operating the program. These committees are organized for the primary purpose of making the vocational-technical program as effective as possible so that the community and trainees may be served to the greatest advantage.

The obvious fact that New Mexico is a sparsely populated state presents some difficult problems. It is a matter of attempting to reconcile the dilemma of providing equal opportunity for training on the one hand and an economical organization on the other. However, when decisions are made based on sound planning, anything short of a full commitment will result in many disappointments.

Programs for In-School-Youth. A truly comprehensive high school is probably not economically feasible in New Mexico except in the eight or ten largest cities. Although much improvement in vocational offerings is evident since the passage of the Vocational Education Act of 1963, much is left to be desired. Table VII illustrates the growth that has taken place in vocational areas since 1965.

TABLE VII

Vocational-Technical Enrollments In New Mexico for the Years 1965-66 and 1967-68[1]

Programs	Enrollment 1965-66	1967-68
Agriculture		
High School	2477	2633
Post-High School	0	28
Adult Program	36	90
Distributive Education		
High School	731	1362
Post-High School	0	94
Adult Program	90	80
Health Occupations		
High School	16	146
Post-High School	106	233
Adult Program	0	97
Home Economics		
High School	8893	7193
Post-High School	0	0
Adult Program	380	380
Office Education		
High School	3077	3561
Post-High School	209	2360
Adult Program	1187	1519
Technical Education		
Post-High School	339	743
Adult Program	161	70
Trade and Industrial Education		
High School	992	1761
Post-High School	0	461
Adult Program	1560	1847

1. Statistics supplied by the office of the State Director of Vocational Education.

In the majority of high schools where vocational offerings must be limited due to the cost of equipment accompanied by limited enrollment, a careful, in-depth assessment of interests, needs, and opportunities must be made before implementing a specific training program. Marginal programs should be left to an area vocational center. For example, if one were considering auto mechanics, the machining trades, and electronics, the first might be selected by a high school because of pupil interest and good job opportunities while the other two could be rejected on the basis of cost of equipment and modest interest and/or ability of students to profit from the program. Training in the machining trades and electronics might be offered economically in an area vocational school. The most effective size for the latter is one that is large enough to (1) discontinue programs that are no longer needed and (2) support initial low enrollment in newly established curricula. Most high schools cannot afford this luxury. Once a program is established there is danger that it will be perpetuated on the basis of available equipment and a teacher under contract rather than on need and interest. Training that cannot be economically justified in a day-trade class may be implemented in the form of a cooperative part-time program known as industrial cooperative training if suitable training stations are available. This program is organized in the same manner as the more widely known distributive education program.

Cooperative part-time programs are also recommended for other vocational areas in the school such as agri-business, agri-mechanics, office occupations, and job-oriented home economics.

A comparatively new type of program that has achieved a measure of success in recent years is a program for academic underachievers. It is designed as a work-experience program. In addition to developing good work habits and some skills in low-level (usually service) occupations, this program releaves teachers in the regular vocational program of the responsibility of providing space in their classes for this type of student who is not likely to profit from the instruction. Implementation of this program will up-grade the quality of the regular program and improve its status.

In order to be capable of making a more realistic choice of occupations all students in a public school system should experience an orientation to the world of work. To be most effective it should not be restricted to students enrolled in the practical courses at the junior and senior high school.

After experiencing some type of occupational orientation non-college bound high school students should be able to choose from a variety of training programs in the high school or an area vocational school serving the district or the state. The following should be considered after appraising student interests and current and future job opportunities.

1. Vocational Agriculture
   a. For farming
   b. Agri-business on cooperative part-time basis

2. Business and Office Occupations
   a. Distributive education
   b. Secretarial training
   c. Clerical training

3. Vocational Home Economics
   a. For the future homemaker
   b. For wage-earning including health occupations

4. Trade and Industrial Education
   a. Selected day-trade classes
   b. Industrial cooperative training

5. Occupational Work-Experience Program

Delaying vocational education until the post-high school years has many supporters. The case is usually based on the issue of maturity--high school youngsters are not sufficiently mature to make important vocational decisions that may be regretted later. Certainly, for some the dealy would be wise but can we afford to forget those that would be forced into an academic program--one of the major reasons for leaving the school? The achievement of a measure of success in a vocational-technical program oftentimes generates more interest in the academics, especially if a relationship can be shown between the two.

Full-time Post-high School Programs. These programs are best offered in an area vocational school setting. Two rather distinct levels of training should be included: (1) vocational courses ranging in length from as little as six weeks to as long as two years and (2) two-year technical courses. The former could include training for food services, auto mechanics, auto body, building trades, farm mechanics, bookkeeping, practical nursing, vocational drafting, etc. If part-time placement is feasible, some of the training can be organized on a cooperative part-time basis. In addition to those mentioned above, short, intensified courses for semi-skilled occupations to meet the needs of the labor market should be considered when sufficient demand warrants them.

All technical curricula should be planned as two-year terminal programs on the collegiate level. Examples of typical curricula are: civil technology, data processing, drafting and design technology, dental hygiene, electronics technology, secretarial science and food service management.

The quality of instruction in the technical program is even more critical than at the vocational level due to the rapid changes taking place in industry. Consequently, it is imperative that instructors keep abreast of these changes through summer or part-time employment in related industries. As an absolute minimum, contacts with appropriate industries should be maintained on a regular basis.

Parallel programs at the vocational and technical levels are highly recommended and permit students having difficulty at the technical level to move to a less academically demanding vocational curriculum. For example, if a student enrolled in an electronics technology program finds the required mathematics insurmountable, he would be permitted to change to an electronics service (radio and TV repair) program with a minimum loss of credits. The reverse would also be permitted if the instructor discovered that an electronics service student possessed the capability to succeed in the electronics technology program.

Part-time and Evening Programs. Classes for apprentices and journeymen are offered on a trade extension and/or evening basis. In addition to these highly organized classes, skill development classes for other types of employed workers should be promoted on a regular basis.

THE AREA VOCATIONAL SCHOOL--

ITS FUTURE IN NEW MEXICO

In order to bring vocational-technical education to as many people as possible additional centers must be established in the future. The ideal of providing a center within reasonable commuting distance of every person in the state is not practical and, as an alternative, dormitory facilities should be erected on a very limited basis. This identifies another practical problem. If a person is not within commuting distance of a training program he desires to pursue and must therefore move to a center with dormitory facilities, is he being provided with an equal opportunity for training? He is not. Board and room grants and/or substantial work-study monies are a must to equalize the opportunity.

In Figure 1, "O" locates existing centers. The centers at Roswell and El Rito have dormitory facilities. The former is operating at a fraction of dormitory capacity so additional space for this purpose should not be required for several years at that facility in New Mexico. Additional dormitories may be desirable at El Rito. Assuming that all of the new centers to be recommended cannot be established simultaneously, an order of priority is presented in Figure 1. Recommended for 1969 are centers at Gallup (with dormitories) and Las Cruces (+); for 1971, centers at Santa Fe and Farmington (*); for 1973 centers at Las Vegas and Clovis (#); and for 1975, although marginal, centers at Bayard and Socorro (⊕). It would seem

that with a network of this magnitude with dormitory facilities at two centers, and with the possible addition of Gallup, the needs of the state could be met adequately. A change in the financial climate at the federal and state level could throttle or accelerate the recommended schedule.

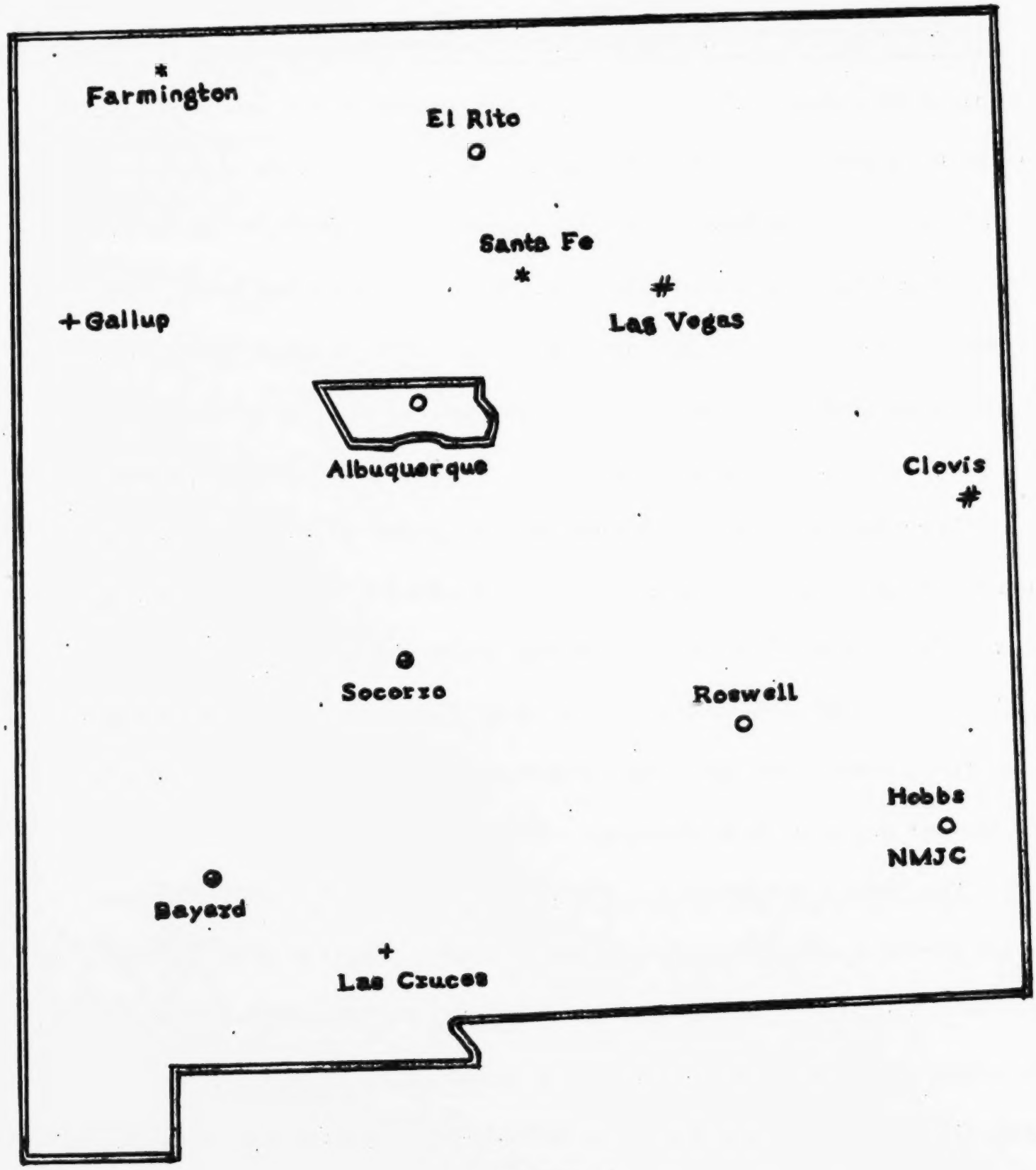

Figure 1.

Key

O	Existing Centers
+	1969
*	1971
#	1973
●	1975 (marginal)

The Future of Technical Education in New Mexico. Technical education is at the crossroads. Two very difficult problems must be reconciled before the State's program of technical education can make significant progress: (1) to the extent that the program will continue to be financed from a fixed budget earmarked for technical education, the leadership must accept national standards and insist on compliance in order for a program to be funded; and (2) capable high school students must be made aware of the nature of technical education and the rewards that can be expected.

Technical education curricula re now offered at the following institutions: Albuquerque Technical-Vocational Institute, El Rito, Eastern New Mexico University, New Mexico Highlands University, New Mexico Junior College, and New Mexico State University. Since none of the technical education centers are operating close to capacity, no need exists at present for further duplication of offerings.

The Nature of Guidance in the Secondary Schools. Effective vocational guidance counselors are a must in a total program of vocational-technical education. It is imperative that they possess sufficient work experience and knowledge of the world of work to be able to advise students realistically. (3, p. 17) Much improvement is needed in this service area. A recent study reported on the adequacy of guidance in vocational-technical education. The team of researchers reported that data revealed that the vocational students were the least likely to have discussed either their

course choices or occupational plans with a counselor. About one-half of the vocational graduates recalled discussing their course choices and about one-fifth recalled discussing occupational plans. However, about three-fourths of the academic graduates reported discussing job plans. None of this is reassuring, but the direction of the difference should cause much concern. Certain weaknesses related to student-counselor ratio, inadequate physical facilities, lack of counselor-employer contact, incomplete records, etc., were identified. By any criterion, the guidance program, as currently carried on, was one of the major weaknesses found in this study of vocational education.

In their attempt to evaluate the effectiveness of vocational guidance, the researchers found it impossible because so little of it was being done. They recommended that counselors be employed who are trained to work with non-college young people. These counselors, to be effective, must be familiar with the psychological, sociological, and economic characteristics of these students, and must have sufficient knowledge of the world of work and occupational literature to guide vocational exploration.

Placing more emphasis in a counselor training program on techniques geared to the needs of the non-college bound student is the responsibility of Colleges of Education. In-service programs for counselors in the field is the obvious responsibility of the State Department of Education. Some progress has been made but the problem is a difficult one to resolve and

a solution cannot be expected to result from a program of "retreading" that is necessarily restricted to a conference or two per year. This is a task that cannot be accomplished by the State Department of Education alone, but all of the institutions of higher learning who prepare guidance personnel must take an active interest. (16, pp. 96, 110)

GENERALIZATIONS AND CONCLUSIONS

The implementation of a well-conceived occupational information program can make a valuable contribution to vocational education. Some form of the program should begin in grade school and continue on through junior high school. A probabl side effect of this program should be an improvement in the vocational education image.

The cluster-concept should be implemented in some form, especcially for the "undecideds", at all three levels of vocational-technical education--occupational for low ability students, vocational, and technical.

Cooperative part-time programs should be extended to the trade area (industrial cooperative training) and other areas (agriculture, service and health occupation) if a community is large enough to provide sufficient training stations. If sufficient potential training stations are available to support an industrial cooperative training program in a community, a high school cannot justify a day-trade class without a cooperative program. The educational advantages of the latter over the former are staggering. Implementation of an occupational work-experience program for low ability students will provide a much needed opportunity to a neglected segment of the school and, perhaps equally important, the regular vocational program will be able to concentrate on students who can profit from the training.

Guidance counselors are an important part of the vocational education program and it is imperative that in-service programs continue to give their attention to important problems related to the counselling of the non-college bound student. Improvement of communications between the vocational teachers and the counselors will contribute to a better understanding of the total program.

Expension of area vocational-technical centers is imperative to meet the training needs of the state. Because of the economics of instruction, less popular vocational areas should be concentrated in one or two centers, preferably where dormitory facilities are available. Technical education in New Mexico is at the corssroads and needs to be studied very carefully in an effort to raise existing programs up to recognized minimum standards.

The effectiveness of vocational-technical programs should be of concern to all. In the final analysis they must be evaluated largely in terms of three things:

1. The percentage of trainees who work at the occupation for which they are trained, or a closely related one.

2. How well the trainees do in their respective occupations in comparison with others similarly employed but who lack such training.

3. How well the trainees as individuals are satisfied with the training received and the job advancements they are making by reason of the training.

Although one could be accused of de-emphasizing the importance of academics in a vocational-technical program by delaying any reference to

them until the end, this is not the case. Roughly half of a student's time should be spent in academics and/or related subjects. In a low-level occupational program students should be exposed to specially designed courses in communications, human relations, grooming, etc. The more sophisticated vocational areas should involve appropriate academics that are needed to achieve success in the field. Some technical programs require applied calculus. A quality program at any level of vocational-technical education prepares students for entry into a chosen occupation without neglecting the essentials of a general education.

Much space in current periodicals has been devoted to the technological revolution--the computer, cybernetics, lasers, etc. It is true that in the future many will find work in exotic production plants. However, most will be working in occupations not too different from today's. Among those that will be in most demand: government workers; specialists in finance, insurance, and real estate; medical and health specialists; specialists in accounting, advertising and data processing; construction workers; managers and supervisors; clerks, salespeople, waiters, repairmen, installers, and other service help. (32, pp. 6-16)

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